REMARKS

Claims 1-5 were pending at the time of this Final Office Action ("OA") dated March 17, 2010. Claims 1-5 have been considered by the Office, and were rejected.

Claims 1, 4 and 5 have been amended. Support for the amendments can be found throughout the specification and claims as originally filed. For example, support for the amendment to claim 1 can be found, *inter alia*, in the Specification at page 9, 2nd paragraph. Therefore, no new matter has been added. Entry of the amendments and reconsideration in view of the following comments are respectfully requested.

The Rejection Under 35 U.S.C. § 103

Claims 1-5 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Knecht et al. as evidence by O'Neil et al. regarding the molecular weights of the compounds utilized by Knecht et al. and Vetro et al. OA at page 6. The Examiner acknowledged that Knecht et al. do not teach a carrier comprising HAS, BSA, or KLH. OA at page 7. In order to address this deficiency, the Examiner cited Vetro et al., which allegedly teach an array for the detection of a small molecule toxin in a sample comprising a conjugate of BSA and the small molecule compound immobilized on the solid support, and allegedly further teach the small molecule compound conjugated to KLH. *Id.* The Examiner concluded that it would have been obvious to one skilled in the art at the time of the invention to combine the teachings by Vetro et al. with that by Knecht et al. to arrive at the presently claimed invention. *Id.* Applicants respectfully traverse this rejection for the reasons set forth below.

The initial burden to make a *prima facie* case of obviousness is on the Examiner. *In re Bell*, 991 F.2d 781, 783 (Fed. Cir. 1993). To make a *prima facie* case of obviousness, the teachings of the prior art should have suggested the claimed subject matter to the person of ordinary skill in the art, and all the claim limitations must be taught or suggested in the references cited by the Examiner. *In re Kotzab*, 217 F.3d 1365, 1370 (Fed. Cir. 2000). Moreover, "it remains necessary to

identify the reason why a person of ordinary skill in the art would have combined the prior art elements in the manner claimed." *KSR Intl Co. v. Teleflex, Inc.*, 550 U.S. 398 (2007).

As an initial matter, claim 1 has been amended to recite "the small molecule compound is cross-linked to the carrier using a cross-linking agent selected from the group consisting of 1, 1-bis(diazoacetyl)-2-phenylethane, N-hydroxysuccinimide esters and bifunctional maleimides." Neither Knecht et al. nor Vetro et al. teach or suggest cross-linking the small molecule compound to the carrier using the cross-linking agents recited in claim 1 as amended. Therefore, combining the teachings by Knecht et al. and Vetro et al. does not teach all the limitations of the presently claimed invention.

Also, Applicants respectfully submit that the Examiner has failed to provide a reason why a person of ordinary in the art would have combined the teachings by Vetro et al. with those by Knecht et al. The Examiner alleges that Vetro et al. teach that any of the carriers, such as OVA, BSA, HAS and KLH can be used and further teach that they can be changed in order to improve results, and that Vetro et al. teach successfully coupling small molecules to carriers on an array, and further teach successful detection of small molecules using the array. Applicants respectfully disagree. Although Knecht et al. teach an array based method for detection of small molecule compounds, Vetro et al. teach the development of a sensitive monoclonal antibody (mAb) specific for fumonisin B_1 (FB_1) in cereals. *See* Vetro et al. at page 2822, left col., 2nd para. Conjugation of FB_1 to various carrier proteins was used as immunogens to immunize mice to generate high-quality mAbs to FB_1. *See* Vestro et al. at page 2823, left col., last para. Thus, the Vetro et al. reference is in the field of mAb generation, not microarray-based detection of small molecule compounds as taught by Knecht et al. Therefore, it is not analogous prior art, and can not be relied upon for the obviousness rejection under 35 U.S.C. § 103. *See* MPEP § 2141.01(a)(I).

The Examiner further alleges that it would have been obvious to one of skill in the art at the time of the invention to substitute one known element (*i.e.*, the carriers such as OVA, HAS, BSA and KLH as taught by Vetro et al.) for another known element (*i.e.*, the carriers such as OVA and GOx as taught by Knecht et al.) because it would have yielded predictable result of an array

with a conjugate of a small molecule and a carrier. Applicants respectfully disagree. As discussed above, the teachings by Vetro et al. relates to generating mAbs against FB_1 by administrating immunogens into mice. On the other hand the teachings by Knecht et al. relates to microarray-based methods to detect small molecule compounds. The carrier proteins serve difference purposes in the teachings by Knecht et al. and Vetro et al. In the teachings by Knecht et al. the carrier proteins serve the purpose of immobilizing the small molecule compounds on the surface of the microarray. *See* Knecht et al. at page 651, left col. In the teachings by Vetro et al., the carrier proteins are used as conjugates of FB_1, and present the conjugated FB_1 molecules as immmunogens to the immune system of the immunized mice. *See* Vetro et al. at page 2823, right col. A person skilled in the art would recognize the difference in the fields of endeavor between these teachings, and would not have a reasonable expectation of success to substitute the carrier proteins disclosed by Vetro et al. for the immobilization molecules on the microarray as taught by Knecht et al. Therefore, the Examiner has failed to provide a reason why a person of ordinary skill in the art would have combined the prior art elements to reach the presently claimed invention.

Further, the present claims require the conjugate of a carrier and a small molecule to be immobilized on a solid support is selected from the group consisting of ceramic, glass, silica, quartz, nylon, plastic, polystyrene and metal. If Vetro et al. were modified to render the present claims obvious, as suggested by the Examiner, the FB_1 conjugate in Vetro et al. would have to be immobilized on a solid support which is selected from the group consisting of ceramic, glass, silica, quartz, nylon, plastic, polystyrene and metal. Such immobilization, however, would defeat the purpose of Vetro et al. as once the conjugate is immobilized to the solid support recited in the present claims, the conjugate would not suitable for injection into a host animal to generate antibodies. MPEP § 2143.01(V) (citing *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)).

Thus, combining the teachings by Knecht et al. with those by Vetro et al. does not teach or suggest all the limitations of the presently claimed invention. The Vetro et al. reference is not analogous prior art and therefore, there lacks a reasonable expectation of success by a person skilled in the art to combine the teachings of Vetro et al. with those by Knecht et al. Further, modifying the

teachings by Vetro et al. to arrive at the presently claimed invention would defeat the intended purpose of Vetro et al. and make the method inoperable. Accordingly, the Examiner failed to establish a *prima facie* case of obviousness and this rejection under 35 U.S.C. § 103 should be properly withdrawn.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket No. 514572002800. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

Respectfully submitted,

Dated: May 17, 2010

By: /Kun Wang/
Kun Wang
Registration No.: 57,747
MORRISON & FOERSTER LLP
12531 High Bluff Drive, Suite 100
San Diego, California 92130-2040
(858) 314-5435